Claims

What is claimed is:

1. An isolated polynucleotide comprising a nucleic acid sequence targeted to a target nucleic acid sequence within a respiratory syncytial virus (RSV) gene or RSV transcript, wherein said polynucleotide inhibits expression of said RSV gene or transcript.

2. The polynucleotide of claim 1, wherein said RSV is human RSV.

3. The polynucleotide of claim 1, wherein said target nucleic acid sequence is at least a portion of the human RSV NS1 or NS2 gene or transcript.

4. The polynucleotide of any of claims 1 to 3, wherein said target nucleic acid sequence is located in a region selected from the group consisting of the 5' untranslated region (UTR), transcription start site, translation start site, and 3' UTR.

5. The polynucleotide of any of claims 1 to 4, wherein said polynucleotide is a small interfering RNA (siRNA).

6. The polynucleotide of any of claims 1 to 4, wherein said polynucleotide is an antisense molecule.

7. The polynucleotide of any of claims 1 to 4, wherein said polynucleotide is a ribozyme.

8. The polynucleotide of claim 1, wherein said polynucleotide comprises SEQ ID NO:1 or SEQ ID NO:2.

9. The polynucleotide of claim 1, wherein said RSV gene or RSV transcript is at least a portion of the bovine NS1 or NS2 gene or transcript.

10. The polynucleotide of any of claims 1 to 4, wherein said polynucleotide further comprises a regulatory sequence operably linked to said nucleic acid sequence.

11. The polynucleotide of claim 10, wherein said regulatory sequence is surfactant protein B, or a steroid response element, or both.

12. A method for reducing the expression of a respiratory syncytial virus (RSV) gene in a subject, comprising administering the polynucleotide of any of claims 1 to 7 to the subject, wherein the polynucleotide is administered in an effective amount to reduce expression of the RSV gene or transcript.

13. The method of claim 12, wherein the subject is suffering from an RSV infection.

14. The method of claim 12, wherein the subject is not suffering from an RSV infection.

15. The method of claim 12, wherein the subject is human.

16. The method of claim 12, wherein the subject is a non-human mammal.

17. The method of claim 12, wherein the polynucleotide is administered such that the polynucleotide is delivered to cells within the subject selected from the group consisting of respiratory epithelial cells, dendritic cells, and monocytes.

18. The method of claim 12, wherein the polynucleotide is administered to the subject intranasally.

19. The method of claim 12, wherein the polynucleotide is administered intranasally as drops or as an aerosol.

20. The method of claim 12, wherein said administering comprises administering a combination of polynucleotides that reduce the expression of both RSV NS1 and NS2 within the subject.

21. The method of claim 12, wherein the polynucleotide is an siRNA and wherein the siRNA reduces expression of RSV NS1 and NS2 within the subject.

22. The method of claim 12, wherein the RSV gene or transcript encodes a polypeptide that reduces production of type-I interferon by monocytes and dendritic cells within the subject.

23. The method of claim 12, wherein the polynucleotide is administered to the subject as a nanoparticle.

24. The method of claim 12, wherein the polynucleotide further comprises an operably linked promoter.

25. The method of claim 12, wherein the polynucleotide further comprises an operably linked regulatory sequence, wherein the regulatory sequence is surfactant protein B, a steroid response element, or both.

26. The method of claim 12, wherein the polynucleotide is administered in an amount effective to increase type I interferon within the subject.

27. A vector comprising a polynucleotide of any of claims 1 to 9; and an operably linked promoter.

28. The vector of claim 27, wherein the vector is a viral vector.

29. The vector of claim 27, wherein the vector is a non-viral vector.

30. A composition comprising the polynucleotide of any of claims 1 to 9; and a pharmaceutically acceptable carrier.

31. A composition comprising the vector of any of claims 27 to 29; and a pharmaceutically acceptable carrier.